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(54) Title: METHODS, SYSTEMS AND COMPUTER PROGRAM PRODUCTS FOR IDENTIFYING A COMPATIBLE INDIVIDUAL IN A GEOGRAPHIC AREA

(57) Abstract: Embodiments of the present invention include methods, systems and computer program products for identifying a compatible individual in a specified region. The identifying operations in various embodiments are performed by a server located remote from the specified region. A registration request is received at the server from a mobile device. The registration request includes a profile identifier associated with a user of the mobile device and further includes location information identifying a location in the specified region. A profile associated with the profile identifier is obtained by the server which also determines if a compatible individual is located within the specified region based on the profile and location information. The user of the mobile device is notified if a compatible individual is located. Other embodiments utilize location information generated automatically by the mobile device, for example, using a Global Positioning System (GPS) receiver or a land based automated positioning system. Further embodiments include a profile identifier which is unique to a profile, rather than an individual user, so that profile changes for an individual user may be identified by a change in the profile identifier associated with the individual user's profile information.

METHODS, SYSTEMS AND COMPUTER PROGRAM PRODUCTS FOR IDENTIFYING A COMPATIBLE INDIVIDUAL IN A GEOGRAPHIC AREA

BACKGROUND OF THE INVENTION

The present invention relates to locating compatible individuals for the purpose of meeting people and, more particularly, to locating compatible individuals in a particular geographic area.

The desire of individuals to learn about and contact other individuals with compatible interests has been addressed by a variety of types of introduction systems in the past. For example, a variety of newspapers and magazines include sections which typically list profiles which readers can scan in search of a person having matching interests. Hobby-oriented clubs, such as photography, hiking, etc., typically advertise meetings for the benefit of newcomers, visitors, and others who might be interested in the hobby clubs' associated activities. More recently, with the introduction of widespread communication networks, such as the Internet, computers have been utilized to accomplish this same objective of performing introductions. For example, America Online (AOL) operates a service that allows users to scan through a list of profiles for a given area. Services, such as AOL, typically also operate "chat rooms" which may have an associated theme and allow individuals to exchange electronic communications by entering into the chat room and participating in an ongoing discussion.

Various systems in the past have also provided for limited screening for compatibility. For example, matchmaker or date finder services, such as those that may be operated by radio stations, may provide limited screening for compatibility. A computer based system for locating compatible persons is described in United States Patent No. 5,086,394 which relies on local control units positioned in geographic locations, for example, in a restaurant, where the user of the system may enter identification and registration information. Users are further provided personal devices, such as a pager, which may maintain a copy of a user's personal data and may be assigned an address code that identifies the personal device and, thereby, the

assigned user of the personal device. A further example of an "on the spot" introduction system is provided in United States Patent No. 4,173,016.

SUMMARY OF THE INVENTION

Embodiments of the present invention include methods, systems and computer program products for identifying a compatible individual in a specified region. The identifying operations in various embodiments are performed by a server located remote from the specified region. A registration request is received at the server from a mobile device. The registration request includes a profile identifier associated with a user of the mobile device and further includes location information identifying a location in the specified region. A profile associated with the profile identifier is obtained by the server which also determines if a compatible individual is located within the specified region based on the profile and location information. The user of the mobile device is notified if a compatible individual is located. Other embodiments utilize location information generated automatically by the mobile device, for example, using a Global Positioning System (GPS) receiver or a land based automated positioning system. Further embodiments include a profile identifier which is unique to a profile, rather than an individual user, so that profile changes for an individual user may be identified by a change in the profile identifier associated with the individual user's profile information.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a block diagram of embodiments of the present invention implemented in a network environment.

Figure 2 is a block diagram of data processing systems according to embodiments of the present invention.

Figure 3 is a more detailed block diagram of data processing systems according to embodiments of the present invention.

Figure 4 is a block diagram of a mobile device according to embodiments of the present invention.

Figure 5 is a flowchart illustrating operations for identifying a compatible individual using a remoter server according to embodiments of the present invention.

Figure 6 is a flowchart illustrating operations for identifying a compatible user as performed by a mobile device having automated location determination capabilities according to embodiments of the present invention.

Figure 7 is a flowchart illustrating operations for identifying a compatible individual using a search criteria according to embodiments of the present invention.

Figure 8 is a flowchart illustrating operations for establishing and updating a profile having an associated profile identifier according to embodiments of the present invention.

Figure 9 is a flowchart illustrating operations for identifying a compatible individual according to further embodiments of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

The present invention now will be described more fully hereinafter with reference to the accompanying drawings, in which illustrative embodiments of the invention are shown. This invention may, however, be embodied in many different forms and should not be construed as limited to the embodiments set forth herein; rather, these embodiments are provided so that this disclosure will be thorough and complete, and will fully convey the scope of the invention to those skilled in the art.

As will be appreciated by one of skill in the art, the present invention may be embodied as a method, system, or computer program product. Accordingly, the present invention may take the form of an entirely hardware embodiment, an entirely software embodiment or an embodiment combining software and hardware aspects. Furthermore, the present invention may take the form of a computer program product on a computer-usable storage medium having computer-usable program code means embodied in the medium. Any suitable computer readable medium may be utilized including hard disks, CD-ROMs, optical storage devices, a transmission media, such as those supporting the Internet or an intranet, or magnetic storage devices.

Computer program code for carrying out operations of the present invention may be written in an object oriented programming language such as Java®, Smalltalk or C++. However, the computer program code for carrying out operations of the present invention may also be written in conventional procedural programming languages, such as the "C" programming language. The program code may execute entirely on the user's computer, partly on the user's computer, as a stand-alone software package, partly on the user's computer and partly on a remote computer or

entirely on the remote computer. In the latter scenario, the remote computer may be connected to the user's computer through a local area network (LAN) or a wide area network (WAN), or the connection may be made to an external computer (for example, through the Internet using an Internet Service Provider).

The present invention is described below with reference to flowchart illustrations and/or block diagrams of methods, apparatus (systems) and computer program products according to embodiments of the invention. It will be understood that each block of the flowchart illustrations and/or block diagrams, and combinations of blocks in the flowchart illustrations and/or block diagrams, can be implemented by computer program instructions. These computer program instructions may be provided to a processor of a general purpose computer, special purpose computer, or other programmable data processing apparatus to produce a machine, such that the instructions, which execute via the processor of the computer or other programmable data processing apparatus, create means for implementing the functions specified in the flowchart and/or block diagram block or blocks..

These computer program instructions may also be stored in a computer-readable memory that can direct a computer or other programmable data processing apparatus to function in a particular manner, such that the instructions stored in the computer-readable memory produce an article of manufacture including instruction means which implement the function specified in the flowchart and/or block diagram block or blocks.

The computer program instructions may also be loaded onto a computer or other programmable data processing apparatus to cause a series of operational steps to be performed on the computer or other programmable apparatus to produce a computer implemented process such that the instructions which execute on the computer or other programmable apparatus provide steps for implementing the functions specified in the flowchart and/or block diagram block or blocks.

Figure 1 is a block diagram which illustrates embodiments of the present invention implemented in a computer network environment. The system **100** includes a gateway server **105** which is operatively coupled to a profile database **110**. For the illustrated embodiments of **Figure 1**, the server **105** is coupled to a wireless network **120**, such as a cellular telecommunications network, through a communication network such as the Internet protocol (IP) network **125** shown in **Figure 1**. A wireless terminal **130** communicates over a wireless connection to the wireless

network **120**. Thus, the wireless network **120** may provide a connection between the wireless terminal **130** and the server **105** through the IP network **125**. The wireless terminal **130** further communicates with a locating system, illustrated as a GPS satellite **135** for the embodiments shown in **Figure 1**.

The gateway server **105** may be used to allow individuals, such as a user of the wireless terminal **130**, to find potential mates, friends, colleagues or other individuals with compatible interests either when they come into a new physical location, such as traveling to a new city, or in their home area. The gateway server **105** utilizes profile information on different users from the profile database **110** to make comparisons to identification of a possible match of individuals in a designated geographical location. Location information received from the wireless terminal **130**, such as a position fix generated by the wireless terminal **130** using a GPS system including the GPS satellite **135** may be provided by the wireless terminal **130** to the gateway server **105**. The gateway server **105**, which, in turn, may use the location information as a comparison parameter defining the specified region for which a match is sought. In various embodiments, the gateway server **105** may further initiate a follow up contact, including an anonymous contact between matched individuals. The gateway server **105** need not be located in any of the geographic locations where various users of wireless terminals **130** are located in order to perform its locating operations. Location information may be provided by the wireless terminal **130** to the gateway server **105**, for example, over the IP network **125**, thus allowing the gateway server **105** to be positioned at any convenient location.

In embodiments of the present invention, methods, systems and computer program products are provided for identifying a compatible individual in a specified region using a server located remote from the specified region. A registration request is received at the server from a mobile device. The registration request includes a profile identifier associated with a user of the mobile device and further includes location information for the mobile device. The location information identifies a location in the specified region. A profile associated with the profile identifier is obtained. It is determined if a compatible individual is located within the specified region based on the profile and the location information. The user associated with the mobile device is notified if a compatible individual is located.

In further embodiments of the present invention, the server further initiates contact between the user of the mobile device and the compatible individual. The

compatible individual may be a user of a second mobile device and contact may be initiated by establishing an anonymous connection between the mobile device and the second mobile device. The contact in various embodiments may be initiated by: establishing an instant messaging (IM) session using anonymous identities; exchanging SMS messages between the mobile device and a second mobile device associated with the compatible individual with personal identification information removed; or, providing anonymous message posting for the user of the mobile device and the compatible individual. In alternative embodiments the contact may be initiated by providing the user of the mobile terminal and the compatible individual contact information.

In other embodiments of the present invention, initiating contact includes scheduling a contact time for the user of the mobile device and the compatible individual based on information obtained from: the profile; a profile associated with the compatible individual; schedule information received from the mobile device in the registration request; schedule information received from a schedule database; or, schedule information received from the mobile device responsive to the notification of a compatible individual.

In yet further embodiments of the present invention, the registration request includes search criteria. Determining if a compatible individual is located within the specified region may further include searching a database containing profiles for a plurality of candidate individuals for a match with the profile associated with the profile identifier based on the search criteria. The profiles for the candidate individuals may include a designation of either a local individual for the specified region or a roamer individual for the specified region. The search criteria may include a designation of either a local or roamer individual and the search may be for profiles containing the designated type of local or roamer individual for the specified region.

In further embodiments of the present invention, the search criteria includes a designation of duration of stay. The profile associated with the profile identifier is placed in the search database for the duration of stay. The search database is periodically searched for a compatible individual for the duration of stay. The search criteria may further include a designation of search timing and the search database may be periodically searched for a compatible individual for the duration of stay at times based on the designation of search timing. In other embodiments, the search

criteria includes itinerary information. The itinerary information includes one or more associations of a residence time with locations. The search database is periodically searched during respective residence times for a compatible individual located in the associated at least one location.

In other embodiments of the present invention, methods, systems and computer program products are provided for identifying a compatible individual in a specified region. A connection is established between a wireless terminal and a search database device over a wireless communication network. A location of the wireless terminal is determined using either a global positioning system (GPS) or a land based automated positioning system configured to determine the location of the wireless terminal based on wireless communications between the wireless terminal and the land based automated positioning system. A registration request is transmitted to the search database over the connection. The registration request includes the determined location. Notification of a compatible individual in a specified region including the determined location is received from the search database over the connection. The connection may be based on a protocol selected from the group consisting of Wireless Application Protocol (WAP), Cellular Digital Packet Data (CDPD), Circuit Switched Data (CSD), General Packet Radio Service (GPRS), Short Message Service (SMS) and Unstructured Supplementary Services Data (USSD). The wireless communication service may communicate with the server over an Internet Protocol (IP) network and the connection may include IP based communications over the IP network.

In further embodiments of the present invention, methods, systems and computer program products are provided for identifying a compatible individual in a specified region. A registration request is received at a search database from a mobile device. The registration request includes a profile identifier associated with a user of the mobile device and further includes location information for the mobile device identifying a location in the specified region. A profile associated with the profile identifier is obtained. It is determined if a compatible individual is located within the specified region based on the profile and the location information. The user associated with the mobile device is notified if a compatible individual is located. A profile is obtained by first determining if the profile identifier includes the profile. A saved profile associated with a profile identifier code from the profile identifier is obtained if the profile identifier does not include the profile. The profile is requested

from the user of the mobile device if the profile identifier does not include the profile and if no saved profile is associated with the profile identifier code.

Profile information is initially obtained from the user. A profile identifier code is associated with the obtained profile information. The obtained profile information is saved as a profile associated with the profile identifier code. Changes to the profile information are obtained from the user. The profile associated with the profile identifier code is updated. A new profile identifier code is assigned to the updated profile. The updated profile is saved in place of the profile associated with the profile identifier code, the updated profile being associated with the new profile identifier code.

In yet further embodiments of the present invention, server systems are provided for identifying a compatible individual in a specified region. The server is located remote from the specified region. The server includes a communication interface that receives a registration request at the server from a mobile device. The registration request includes a profile identifier associated with a user of the mobile device and further includes location information for the mobile device identifying a location in the specified region. The server further includes a database that includes a plurality of profiles, each of the profiles being associated with a profile identifier and a check-in circuit that obtains a profile associated with the profile identifier from the database. A search circuit determines if a compatible individual is located within the specified region based on the profile and the location information using the database. The communication interface is further configured to notify the user associated with the mobile device if a compatible individual is located. The compatible individual may also be notified.

In yet other embodiments of the present invention mobile devices are provided for identifying a compatible individual in a specified region. The mobile device includes a transceiver circuit that establishes a connection between the mobile device and a search database device over a wireless communication network. A positioning circuit determines a location of the wireless terminal using either a global positioning system (GPS) or a land based automated positioning system configured to determine the location of the wireless terminal based on wireless communications between the wireless terminal and the land based automated positioning system. The transceiver circuit is configured to transmit a registration request to the search database over the connection, the registration request including the determined location. The

transceiver circuit is further configured to receive notification of a compatible individual in a specified region including the determined location from the search database over the connection.

The present invention will now be further described with reference to the block diagram of **Figure 2** which illustrates data processing systems according to embodiments of the present invention. As illustrated in **Figure 2**, the system **230** may include input device(s) **232** such as a keyboard or keypad, a display **234**, and a memory **236** that communicate with a processor **238**. The data processing system **230** may further include a storage system **242**, a speaker **244** and an I/O data port(s) **246** that also communicate with the processor **238**. The storage system **242** may include removable and/or fixed media such as floppy disks, ZIP drives, hard disks or the like as well as virtual storage such as a RAMDISK. The I/O data port(s) **246** can be used to transfer information between the data processing system **230** and another computer system or a network (*e.g.*, the Internet). Such data processing systems may include, for example, personal computers, laptop computers, mainframe computers, pervasive computing devices such as personal digital assistants, smartphones or the like, or even embedded processing systems. The components of a particular data processing system may be conventional or custom components, such as those used in many conventional computing devices, which may be configured to operate as described herein.

Figure 3 is a block diagram of a data processing system that illustrates systems, methods, and computer program products in accordance with embodiments of the present invention. The processor **238** communicates with the memory **236** via an address/data bus **237**. The processor **238** can be a commercially available or custom microprocessor. The memory **236** is representative of the overall hierarchy of memory devices containing the software and data used to implement the functionality of the data processing system **230**. The memory **236** can include, but is not limited to, the following types of devices: cache, ROM, PROM, EPROM, EEPROM, flash memory, SRAM, and DRAM.

As shown in **Figure 3**, the memory **236** may contain several categories of software and data used in the data processing system **230**: the operating system **320**; the application program **340**; the input/output (I/O) device drivers **315**; and the data **310**. As will be appreciated by those of skill in the art, the operating system **320** may be any operating system suitable for use with a data processing system, such as OS/2,

AIX or OS/390 from International Business Machines Corporation, Armonk, NY, WindowsCE, WindowsNT, Windows95, Windows98 or Windows2000 from Microsoft Corporation, Redmond, WA, PalmOS from Palm, Inc., MacOS from Apple Computer, UNIX or Linux, proprietary operating systems or dedicated operating systems, for example, for embedded data processing systems.

The I/O device drivers **315** typically include software routines accessed through the operating system **320** by the application program **340** to communicate with devices such as the input devices **232**, the display **234**, the speaker **244**, the storage system **242**, the I/O data port(s) **246**, and certain memory **236** components. The application program **340** is illustrative of the programs that implement the various features of the data processing system **230**. Finally, the data **310** represents the static and dynamic data used by the application program **340**, operating system **320**, I/O device drivers **315**, and other software programs that may reside in the memory **236**.

As is further seen in **Figure 3**, the application program **340** preferably includes the communication circuit **325** and the search circuit **330**. The data **310** as shown in **Figure 3** includes a profile database **345** and a profile index **350**. The profile database **345** and the profile index **350** may be integrated into a single data structure. The communication circuit **325** in cooperation with the I/O device drivers **315** and the I/O data port(s) **246** provides a communication interface that receives a registration request at the data processing system **230**, such as the server **105**, from a mobile device, such as the wireless terminal **130**. The received registration request includes a profile identifier associated with a user of the mobile device and further includes location information for the mobile device. The received location information is used to identify the specified region in which a compatible individual is sought. It is to be understood that the term "registration request" as used herein is not limited to communications related to setting up profiles or establishing a service but more generally refers to communications from a user to a service provider.

The profile database **345** provides a database that includes a plurality of profiles, each of the profiles being associated with a profile identifier. As shown in the illustrated embodiments of **Figure 3**, a profile index **350** provides a list of profile identifiers for which a corresponding profile is maintained in the profile database 345. The use of such a separate profile index **350** may facilitate searching of the profile database 345 in optional embodiments of the present invention. The search circuit **330** is configured to determine if a compatible individual is located within the

specified region, based on the profile associated with the profile identifier received in the registration request and the location information received in the registration request, using the profile database **345**.

The communication circuit **325** is further configured to notify a user associated with the requesting mobile device if a compatible individual is successfully located. The communication circuit **325**, in various embodiments, may further notify the requesting device when no compatible individual is located. The communication circuit **325** may further be configured to initiate contact between a requesting user of a mobile device and the located compatible individual. For example, the compatible individual may be a user of the second mobile device and the communication circuit **325** may be configured to establish an anonymous connection between the requesting mobile device and the second mobile device.

Figure 4 illustrates an exemplary mobile device **400**, such as a wireless mobile terminal, according to embodiments of the present invention. The mobile terminal **400** includes, in a housing **401**, a transceiver (*i.e.*, receiver and transmitter) **472** that is operative to transmit and receive RF communication signals via an antenna **410** under control of a controller **470**. The controller **470** may include a speech/data processing circuit **476** as well as other functional modules not illustrated in **Figure 4** but which will be understood to those of skill in the art related to wireless communications including both data and voice communication support. As used herein, the speech/data processing circuit **476** may include components such as demodulators, decoders, interleavers and RF processor circuitry.

The controller **470**, such as a microprocessor, microcontroller or similar data processing device, may execute program instructions stored in a memory **460** of the mobile terminal **400**, such as a dynamic random access memory (DRAM), electrically erasable programmable read-only memory (EEPROM) or other storage device. The controller **470** is further operatively associated with user interface components of the mobile terminal **400** such as a display **420**, a keypad **430**, a speaker **440**, and a microphone **450**, operations of which are known to those of skill in the art and will not be further discussed herein.

The transceiver **472** provides a communication circuit including a receiver that receives wireless communications **482** from a search database engine, such as the server **105**, and may further receive location system signals from a land based system or from GPS satellites, such as the GPS satellite **135**. The transceiver **472** may

further operate to provide such signals from the location system to the GPS circuit 474 and from the search database engine to the I/O circuit 478.

The GPS circuit 474 is configured to determine a location of the wireless terminal. As shown in the embodiments of **Figure 4**, the GPS circuit 474 determines a location of the wireless terminal 400 using a global positioning system (GPS). In alternative embodiments, a land based automated positioning system configured to determine the location of the wireless terminal based on wireless communications between the wireless terminal 400 and the land based automated positioning system may be utilized by the positioning circuit 474 to allow the mobile terminal 400 to determine its location. It is to be understood that, as used herein, "GPS" is intended to encompass not only the United States satellite based system commonly using such designation but similar systems, such as Glonass, or other subsequently developed satellite based location systems. Furthermore, as used herein, "land based automated positioning system" is intended to encompass hybrid systems including satellite components.

The I/O circuit 478, in cooperation with the transceiver 472, is configured to transmit a registration request to a search database, such as the server 105, over a connection between the mobile terminal 400 and a search database, such as the server 105. The registration request, in various embodiments, includes the determined location from the GPS circuit 474. The I/O circuit 478, in cooperation with the transceiver 472, is further configured to receive notification of a compatible individual in a specified region such as where the mobile terminal 400 is located, from the server 105 over the established connection. Information utilized to initiate contact between the user of the mobile terminal 400 and a compatible individual may also be received by the I/O circuit 78 through the transceiver 472.

It will be appreciated that the transceiver 472, the speech/data processing circuit 476 and other components of the mobile terminal 400 (as well as circuitry illustrated in **Figures 1** through **3**) may be implemented using a variety of hardware and software. For example, operations of the transceiver 472 and/or the speech/data processing circuit 476 may be implemented using special-purpose hardware, such as an application specific integrated circuit (ASIC) and programmable logic devices such as gate arrays, and/or software or firmware running on a computing device such as a microprocessor, microcontroller or digital signal processor (DSP). It will also be appreciated that, although functions of the transceiver 472 and the other circuits

shown in **Figure 4** may be integrated in a single device, such as a single ASIC microprocessor, they may also be distributed among several devices. Aspects of these circuits may also be combined in one or more devices, such as an ASIC, DSP, microprocessor or microcontroller. These various implementations using hardware, software, or a combination of hardware and software will generally be referred to herein as "circuits."

Operations according to embodiments of the present invention for identifying a compatible individual in a specified region using a server located remote from the specified region will now be further described with reference to the flow chart illustration of **Figure 5**. Operations begin at block **500** with receipt of a registration request from a mobile device. The registration request includes a profile identifier associated with the user of the mobile device and further includes location information for the mobile device. More particularly, the location information is within a specified region and, thus, identifies a specified region for which identification of a compatible individual is desired. The registration request may be received, for example, from a wireless terminal **130** at a server **105** in various embodiments of the present invention. The registration request may be transmitted from the wireless terminal **130**, for example, responsive to a user activating a compatible individual search function of the wireless terminal **130**. Upon activation of the compatible individual search function, the wireless terminal **130** may generate location information as will be further described later herein.

A server or other search database receiving a registration request obtains a profile associated with the profile identifier as will be described for the illustrated embodiments of **Figure 5** with reference to blocks **505-520**. It is first determined if the provided profile identifier included in the registration request includes the profile, as contrasted with merely being a code associated with such profile information (block **505**). If the profile itself is included in the registration request (block **505**), operations move to block **525** to determine if a compatible individual may be found in the specified location. If the profile is not included in the registration request (block **505**), the search database seeks to obtain a saved profile associated with the profile identifier code provided as the profile identifier (block **510**). In other words, the profile identifier included in the registration request could be the profile itself or a profile identifier code which may be used by the search database to obtain the associated profile information from a database accessible to the search database. If a

profile is located in a database accessible to the search database (block 515), the located profile information is utilized at block 525 to search for a compatible individual. If no saved profile is associated with the profile identifier code (block 515), the profile is requested from the user of the mobile device (block 520).

The search database determines if a compatible individual is located within the specified region based on the obtained profile and the location information from the registration request (block 525). The user of the requesting mobile device is notified if a compatible individual is located (block 530). In various embodiments of the present invention, as illustrated in **Figure 5**, the search database may further initiate contact between the user of the mobile device requesting a search and the located compatible individual (block 535). For example, an anonymous connection between the requesting mobile device and a second mobile device associated with a located compatible individual may be established by the search database. A variety of methodologies could be utilized for establishing a connection, and, more particularly, an anonymous connection, such as establishing an instant messaging (IM) session using anonymous identities, exchanging short message service (SMS) messages between the requesting mobile device and a second mobile device associated with the compatible individual with personal identification information removed or by providing anonymous message posting for the user of the requesting mobile device and the compatible individual. Alternatively, the user of the requesting mobile device and a compatible individual may be provided direct contact information.

Thus, as described above, a search database, such as the remote server **105**, may determine that a match exists and inform a requesting mobile device user and a compatible individual of the identification of a match. If no current match exists, the server **105** may inform the requesting mobile device user of the failure to determine a match. The server **105** may also present information to assist the user of the mobile device in contacting the compatible individual. In the simplest case, where direct contact is to be initiated, the profiles of the respective users may contain contact information such as a phone number, SMS number (if different), e-mail address, chat name, etc. which is provided to the compatible individual upon achieving a match. The individuals may then utilize the information provided by the server **105** to make contact independent of the server **105**.

The ability of the server **105** to establish an anonymous initial contact may be desirable where users want a certain amount of privacy, at least initially, in the

matching process. For example, they may want to be considered for matches but may not want to provide personal information, such as a phone number or e-mail or even a chat name. In this instance, an anonymous connection can be supported by the server **105**, as described above, using IM, SMS or a bulletin board. The IM session may utilize anonymous identities assigned for each party. For the SMS communication, the server **105** could act as a filter of the SMS messages between the parties by stripping personal information and forwarding the messages. The bulletin board provided by the server **105** could be made accessible to the individuals, for example, using wireless application protocol (WAP). Access could also be directly over the IP network **125** using a variety of different known gateways for accessing such bulletin boards from Internet compatible devices. Ultimately, the individual users could convert from an anonymous communication to a direct communication. Alternatively, if after an initial IM or SMS session which has been supported by the server **105** users wish to proceed while remaining anonymous, the server **105** may, for example, create an anonymous IM, SMS or message posting service for subsequent contacts.

Operations according to various embodiments of the present invention from the perspective of the mobile device, such as a wireless terminal **130**, will now be further described with reference to the flowchart illustration of **Figure 6**. Operations begin at block **600** with establishing a connection with a search database, for example the server **105**, over a wireless communication network **120**. The wireless terminal **130** determines the location of the wireless terminal (block **610**). This location information may be self generated via a location determination capability supported by the wireless terminal **130** or, in various embodiments of the present invention, may be provided by user input. The wireless network **120** may, alternatively, be utilized to automatically generate location information on the wireless terminal **130** and provide such information to the server **105**. In embodiments using automated determination by the wireless terminal **130**, the location may be determined using the global positioning system (GPS) or, alternatively, a land based automated positioning system configured to determine the location of the wireless terminal **130** based on wireless communications between the wireless terminal **130** and the land based automated positioning system. The land based automated positioning system may be an integrated part of the wireless network **120** or a separate system to which the wireless terminal **130** has access.

The wireless terminal **130** transmits the registration request to a search database such as the server **105** over the established connection (block **620**). The transmission of the registration request may require some type of log-in function depending upon the controls desired for particular applications. The connection used for transmission of the registration request at block **620** may, for example, utilize a protocol such as the wireless application protocol (WAP) or cellular digital packet data (CDPD). Alternative suitable connection methods include short message service (SMS), circuit switch data (CSD), unstructured supplementary services data (USSD), general packet radio service (GPRS), *etc.*

As described generally above with reference to **Figure 5**, on receipt of the registration request, the search database performs a search comparing the profile of the requesting individual to others in the specified area to find a compatible individual. The wireless terminal **130** receives notification of a compatible individual from the search database over the established connection (block **630**). Note that the established connection utilized for transmitting a request and receiving a notification need not be a continuous session as it may be provided over packet based protocols. Thus, as used herein, the term "connection" encompasses both assigned channel communications and periodic packet transmissions at regular or irregular intervals such as provided for by the Internet protocol.

Operations related to searching for compatible individuals according to various embodiments of the present invention will now be further described with reference to the flowchart illustration of **Figure 7**. Operations begin at block **700** when the search database obtains search criteria. Such search criteria may be obtained as part of the registration request from the requesting mobile device. For example, a user's location information may designate a home (local) location or a visiting (roaming) location for the user of the mobile device. Thus, profile information on an individual may designate whether their association with a specified location is as a roamer or a local area and both roamers and local area profiles may be maintained and searched in the profile database. Thus, it may be desirable under various circumstances to allow a requesting user the capability of searching for local individuals or roamer individuals within the specified region, or both, depending upon the requesting user's preference.

It is also possible that, under various circumstances, a user of the mobile device may enter the specified area and remain in that area for some extended

duration of stay, such as all day, all week, *etc.* Therefore, the registration request initiating a search may include search criteria specifying a designation of duration of stay. For example, a user may specify that the user will be resident in the specified area for two days and may have the option of becoming a "temporary" resident of that specified area. The user could then be used in subsequent new searches by other visiting users as a current resident until the visit duration has expired. In such a case, as illustrated in the embodiments of **Figure 7**, any profile associated with the profile identifier from the registration request may be placed in the search database for the duration of stay (block **710**). However, the user may also specify that the user's profile not be included in the search database.

The registration request may also include search type/criteria which may also be utilized by the search database (block **715**). For example, the search database may accommodate periodically searching on more than one occasion, for example, search every two hours, *etc.* throughout the duration of stay or other specified period. The search criteria also may specify the performance of searches at a certain time or during a certain time window, for example, start searching at 5:00 p.m. and repeat every hour thereafter until 10:00 p.m. Further, the user may independently control when their profile may be included in other users' searches as contrasted with initiating searches on their behalf. Thus, periodic searching of the search database for a compatible individual for the duration of stay may include only performance of an initial search (block **720**) or further searches. If more searches beyond the initial search are desired (block **725**), additional searches are performed according to the provided search criteria (block **730**). Otherwise, if additional searches are not required (block **725**), periodic searching only includes the initial search and operations cease until another request is received. The periodic searching may be on an irregular basis as specified by a requesting user and need not follow a mandated uniform pattern. Furthermore, a stop searching capability may be provided to the user of the wireless terminal **130**. This would allow such a user to inform the search database that no additional searches are required. For example, if a successful match with a compatible individual has been achieved, the user may (or may not) wish to terminate further searches.

Referring now to the flowchart illustration of **Figure 8**, operations related to establishing and updating user profiles will be further described according to various embodiments of the present invention. Operations begin at block **800** when initial

profile information is obtained. This profile information may include information related both to the user associated with the profile and the characteristics of the person the user is searching for as a compatible individual. This information may be provided from a mobile device, such as the wireless terminal **130**, to a search database, such as the server **105**, as part of a service set up via the Internet, by telephone, or through another initial contact. Alternatively, the user may provide the profile information with each registration request to the server **105**. For example, a user may belong to a first dating club that has a stored profile for the user. The user may then discover another dating club site, for example, while roaming, in which the user is not yet enrolled and to which the user may wish to register, thereby, likely, requiring re-transmission of profile information. While initial communication of a profile information packet and setting up of an account is described herein as using Internet access, this is simply an option for registration and other means may be utilized for conveying such information to the search database. A variety of standard or nonstandard information exchanged formats may be utilized so long as both the receiving and providing systems are compatible and support the format being utilized.

A profile identifier code is associated with the profile information (block **805**). The obtained profile information is saved as a profile associated with the profile identifier code (block **810**). For example, the profiles with the profile identifier might be stored in the profile database **345** and an index of profile identifier codes for which profiles are maintained in the profile database **345** may be stored in the profile index **350**.

At some subsequent time, changes to the profile information are obtained from the user (block **815**). The profile associated with the profile identifier code is updated based on the changed information (block **820**). A new profile identifier code is assigned to the updated profile (block **825**). The updated profile is saved in place of the previous profile associated with the initial profile identifier code with the updated profile being associated with the new profile identifier code generated at block 825 (block **830**). Thus, utilizing the embodiments illustrated in **Figure 8** where the profile identifier code is unique to a profile, rather than uniquely assigned to a user, the profile identifier code itself may be utilized to determine if updated profile information is required at the search database when a registration request including the profile identifier code is received. Only the profile identifier code need then be exchanged as part of the registration request. If the profile number has changed, the

profile identifier code of the updated profile information will not appear, for example, in the profile index **350**, and new profile information may be requested from the user. Furthermore, an individual user may maintain a plurality of profile identifiers, for example, one associated with a profile used for locating a date and another associated with a profile used for finding a tennis partner. Thus, the wireless terminal **130** may include the profile identifier code as well as the underlying profile information for a current profile associated with the user which profile information may be provided as necessary when the search database does not have the most current information for the user.

Referring now to the flowchart illustration of **Figure 9**, operations according to further embodiments of the present invention will now be described. Operations begin at block **900** when a user of a mobile device configures the user's profile including a desired profile for a compatible individual. A variety of information may be input, for example, using a vCard (block **905**). The mobile user activates a "MateFinder" compatible individual finder function on the user's mobile device (block **910**). In the illustrated embodiment, the mobile assesses its position by GPS, time of arrival (TOA) or other means (block **915**). Position information is thus determined (block **920**). Time of arrival or received signal strength indication (RSSI) reports are alternative methods of determining a location for the wireless device which may be supported by the wireless communication network **120**. This information may also be entered, in various embodiments of the present invention, manually by the user. For example, a location look up entry interface may be supported by the server **105** which guides the user through a location selection, for example, United States >North Carolina> Raleigh. The location information for use in the search may be based on position specifics (for example, find someone within 5 miles of point A) or be based on a place name (for example, find someone in Lund, Sweden) to specify the region where a compatible individual is desired. Location information may further include the search criteria (or information contained in the profile itself) describing other aspects such as mobility (for example, I have a vehicle and can travel) or desired range (for example, I am willing to travel up to 50 miles to meet a compatible individual).

The mobile then establishes a connection to the gateway server (block **925**). This connection may be used to transfer profile information as needed along with the registration request (block **930**). The gateway server may then determine location and

profile information from the request from the mobile and perform a comparison to other candidate individuals (block 935). The gateway server information database may specify local individuals who are usually present in the specified region or roamer designations temporarily resident in the specified region (block 940). If a match is found (block 945), a user is notified that there has been a match (block 950). If no match is found (block 945) the gateway server may inform the user that there is no match (block 947) and, optionally, place the requesting user in the search database for the user's stay duration for subsequent searches responsive to search criteria specified by the user (block 949).

Where a match is obtained, it is determined if a direct contact method is pre-specified (block 955). If direct contact is pre-specified (block 955), the user is provided contact information and may initiate contact with the compatible individual using a variety of methodologies (block 957).. If direct contact is not pre-specified (block 955), the gateway server may inform both parties of the detection of a match and request selection of anonymous contact or direct contact (block 960). The individual users may thus be queried to determine if they desire direct contact information to be provided rather than anonymous contact (block 965). If so, the contact information is provided to both users (block 967). Operations proceed as described previously for block 957.

When anonymous contact is preferred (block 965), the gateway server coordinates the contact method (block 970). As shown in the embodiments of Figure 9, the gateway server may schedule a contact as necessary (block 975) and coordinate the contact session (block 980). The users themselves may then assess the need to continue further contact anonymously or otherwise (block 985).

Scheduling and coordination operations at block 975 and 980 may support matching a mobile user that is roaming in a region with those who may not be mobile (*i.e.*, users that are resident (local) in the specified area). Under such circumstances, there may be instances where the matched parties are not immediately available. The gateway server in various embodiments, may then provide for coordination of a process of setting up a mutually acceptable contact (time and/or method). For example, the gateway server might set up an 8:00 p.m. instant messaging session. The approach used for coordination of a contact may vary, for example, it may make sense to use calendar information from the mobile device of a requesting user or solicit such information from a resident user. In other words, for example, an

electronic calendar maintained on the mobile device of a user may automatically transfer schedule information and availability information to the gateway server for use in selecting a mutually acceptable contact session time. Optionally, a user may be provided the capacity to "block out" certain times in his calendar for potential session creation. Thus, this process may be an automated process based on information already in a calendar or may be an iterative process whereby the user is contacted and prompted for information about suitable times for a subsequent contact session which is being created. There could, for example, be an automated process whereby the gateway server queries the mobile device transparently to the user (*i.e.*, the user does not know this transaction is occurring).

Once this schedule information has been collected from the compatible individuals, the gateway server may use the information to schedule a mutually convenient contact session. The process may further incorporate a reserve and confirm process for scheduling of the subsequent meet. Likewise, the gateway server may coordinate the contact method as well as the time. For example, if the preferred method of contact for both parties is an IM session, then the gateway server may set up an IM session at the agreed upon time. Where the two compatible individuals have differing preferred contact methods, the gateway server could further coordinate the method to be used for each specific contact session.

It is also to be understood that the location information provided to the server in the registration request need not be the location where the mobile device is currently located. For example, it may be desired to provide a pre-searching capability in the search database based on an itinerary (or schedule) of travels for a user (for example, I will be in Memphis on Tuesday). The gateway server may include a physical location to place name correlation database to facilitate such itinerary scheduling. For example, the gateway server may know latitude and longitude information for various place names as the requesting user may not be able to provide such position specific location information related to locations in which the mobile device is not currently present. The location information provided in a registration request may be an itinerary specifying one or more place locations and a corresponding schedule of dates and/or times when a user will be present in these respective locations. Thus, the itinerary information may include a residence time for each of one or more locations. Search operations for a respective registration request may include periodically searching the designated locations during the associated

respective residence times for a compatible individual located in the associated locations during those residence times.

For example, based on the itinerary information, the gateway server may, in advance, establish a user as a temporary resident for each of the planned itinerary locations. The user then may not need to "check in" upon arrival at each destination to be considered for searches. For example, if user "A" schedules a visit to London, then if another roamer (user "B") initiates a search during that period of time (residence) when user "A" said he would be in the area, then user "A" will be considered in the search. If a match is determined, both users may be notified and contact may be initiated as described previously. Furthermore, operations as described herein for finding a compatible individual in accordance with various embodiments of the present invention may also be operated and coordination with existing date finder services, such as those limited to locally placed coordination stations and pagers, for example, in an individual restaurant or other limited geographic region.

Operations of the present invention have been described with respect to the block diagram illustration of **Figures 1** through **3** and the flowchart illustrations of **Figures 5** through **9**. It will be understood that each block of the flowchart illustrations and the block diagram illustrations of **Figures 1** through **9**, and combinations of blocks in the flowchart illustrations and the block diagram illustrations, can be implemented by computer program instructions. These program instructions may be provided to a processor to produce a machine, such that the instructions which execute on the processor create means for implementing the functions specified in the flowchart and block diagram block or blocks. The computer program instructions may be executed by a processor to cause a series of operational steps to be performed by the processor to produce a computer implemented process such that the instructions which execute on the processor provide steps for implementing the functions specified in the flowchart and block diagram block or blocks.

Accordingly, blocks of the flowchart illustrations and the block diagrams support combinations of means for performing the specified functions, combinations of steps for performing the specified functions and program instruction means for performing the specified functions. It will also be understood that each block of the flowchart illustrations and block diagrams, and combinations of blocks in the

flowchart illustrations and block diagrams, can be implemented by special purpose hardware-based systems which perform the specified functions or steps, or combinations of special purpose hardware and computer instructions. For example, the I/O circuit 478 may be implemented as code executing on a processor, as integrated circuit devices, such as signal processors or custom chips, or as a combination of the above.

The flowcharts and block diagrams of **Figures 1** through 9 illustrate the architecture, functionality, and operation of possible implementations of systems, methods and computer program products for identifying a compatible individual in a specified region according to various embodiments of the present invention. In this regard, each block in the flow charts or block diagrams may represent a module, segment, or portion of code, which comprises one or more executable instructions for implementing the specified logical function(s). It should also be noted that, in some alternative implementations, the functions noted in the blocks may occur out of the order noted in the figures. For example, two blocks shown in succession may, in fact, be executed substantially concurrently, or the blocks may sometimes be executed in the reverse order, depending upon the functionality involved.

In the drawings and specification, there have been disclosed typical illustrative embodiments of the invention and, although specific terms are employed, they are used in a generic and descriptive sense only and not for purposes of limitation, the scope of the invention being set forth in the following claims.

WHAT IS CLAIMED IS:

1. A method for identifying a compatible individual in a specified region using a server located remote from the specified region, the method comprising:

receiving a registration request at the server from a mobile device, the registration request including a profile identifier associated with a user of the mobile device and further including location information for the mobile device, the location information identifying a location in the specified region;

obtaining a profile associated with the profile identifier;

determining if a compatible individual is located within the specified region based on the profile and the location information; and

notifying the user associated with the mobile device if a compatible individual is located.

2. The method of Claim 1 wherein the step of obtaining a profile comprises the steps of:

determining if the profile identifier includes the profile;

obtaining a saved profile associated with a profile identifier code from the profile identifier if the profile identifier does not include the profile; and

requesting the profile from the user of the mobile device if the profile identifier does not include the profile and if no saved profile is associated with the profile identifier code.

3. The method of Claim 2 further comprising the steps of:

obtaining profile information from the user;

associating a profile identifier code with the obtained profile information;

saving the obtained profile information as a profile associated with the profile identifier code;

obtaining changes to the profile information from the user;

updating the profile associated with the profile identifier code;

assigning a new profile identifier code to the updated profile; and

saving the updated profile in place of the profile associated with the profile identifier code, the updated profile being associated with the new profile identifier code.

4. The method of Claim 1 wherein the mobile device is a wireless terminal configured to communicate over a wireless communication network, the method further comprising the steps performed by the wireless terminal of:

establishing a connection with the server over the wireless communication network;

determining the location of the wireless terminal using at least one of a global positioning system (GPS) or a land based automated positioning system configured to determine the location of the wireless terminal based on wireless communications between the wireless terminal and the land based automated positioning system;

transmitting the registration request to the server over the connection, the registration request including the determined location as the location information for the wireless terminal; and

receiving notification of a compatible individual from the server over the connection.

5. The method of Claim 4 wherein the connection is based on a protocol selected from the group consisting of Wireless Application Protocol (WAP), Cellular Digital Packet Data (CDPD), Circuit Switched Data (CSD), General Packet Radio Service (GPRS), Short Message Service (SMS) and Unstructured Supplementary Services Data (USSD).

6. The method of Claim 5 wherein the wireless communication service communicates with the server over an Internet Protocol (IP) network and wherein the connection includes IP based communications over the IP network.

7. The method of Claim 1 wherein the connection is based on a protocol selected from the group consisting of Wireless Application Protocol (WAP), Cellular Digital Packet Data (CDPD), Circuit Switched Data (CSD), General Packet Radio Service (GPRS), Short Message Service (SMS) and Unstructured Supplementary Services Data (USSD).

8. The method of Claim 7 wherein the wireless communication service communicates with the server over an Internet Protocol (IP) network and wherein the connection includes IP based communications over the IP network.

9. The method of Claim 7 further comprising the step performed by the server of initiating contact between the user of the mobile device and the compatible individual.

10. The method of Claim 9 wherein the compatible individual is a user of a second mobile device and where the step of initiating contact further comprises the step of establishing an anonymous connection between the mobile device and the second mobile device.

11. The method of Claim 9 wherein the step of initiating contact further comprises at least one of establishing an instant messaging (IM) session using anonymous identities, exchanging SMS messages between the mobile device and a second mobile device associated with the compatible individual with personal identification information removed or providing anonymous message posting for the user of the mobile device and the compatible individual.

12. The method of Claim 9 wherein the step of initiating contact further comprises the step of providing the user of the mobile terminal and the compatible individual contact information.

13. The method of Claim 9 wherein the step of initiating contact further comprises the step of scheduling a contact time for the user of the mobile device and the compatible individual based on information obtained from at least one of the profile, a profile associated with the compatible individual, schedule information received from the mobile device in the registration request, schedule information received from a schedule database or schedule information received from the mobile device responsive to the notification of a compatible individual.

14. The method of Claim 1 wherein the registration request includes search criteria and wherein the step of determining if a compatible individual is located

within the specified region comprises the step of searching a database containing profiles for a plurality of candidate individuals for a match with the profile associated with the profile identifier based on the search criteria.

15. The method of Claim 14 wherein ones of the profiles for the plurality of candidate individuals include a designation of at least one of a local individual for the specified region or a roamer individual for the specified region and wherein the search criteria includes a designation of at least one of local or roamer individual and wherein the step of searching the database further comprises the step of searching for profiles containing the designated at least one of local or roamer individual for the specified region.

16. The method of Claim 14 wherein the search criteria includes a designation of duration of stay, the method further comprising at least one of:

placing the profile associated with the profile identifier in the search database for the duration of stay; and

periodically searching the search database for a compatible individual for the duration of stay.

17. The method of Claim 16 wherein the search criteria further includes a designation of search timing and wherein the step of periodically searching comprises the step of periodically searching the search database for a compatible individual for the duration of stay at times based on the designation of search timing.

18. The method of Claim 14 wherein the search criteria includes itinerary information, the itinerary information including at least one association of a residence time with at least one location and wherein the step of periodically searching further comprises the step of periodically searching the search database for a compatible individual during respective residence times for a compatible individual located in the associated at least one location for the respective residence time.

19. A method for identifying a compatible individual in a specified region:

establishing a connection between a wireless terminal and a search database device over a wireless communication network;

determining a location of the wireless terminal using at least one of a global positioning system (GPS) or a land based automated positioning system configured to determine the location of the wireless terminal based on wireless communications between the wireless terminal and the land based automated positioning system;

transmitting a registration request to the search database over the connection, the registration request including the determined location; and

receiving notification of a compatible individual in a specified region including the determined location from the search database over the connection.

20. The method of Claim 19 wherein the connection is based on a protocol selected from the group consisting of Wireless Application Protocol (WAP), Cellular Digital Packet Data (CDPD), Circuit Switched Data (CSD), General Packet Radio Service (GPRS), Short Message Service (SMS) and Unstructured Supplementary Services Data (USSD).

21. A method for identifying a compatible individual in a specified region:

receiving a registration request at a search database from a mobile device, the registration request including a profile identifier associated with a user of the mobile device and further including location information for the mobile device, the location information identifying a location in the specified region;

obtaining a profile associated with the profile identifier;

determining if a compatible individual is located within the specified region based on the profile and the location information;

notifying the user associated with the mobile device if a compatible individual is located;

wherein the step of obtaining a profile comprises the following steps:

determining if the profile identifier includes the profile;

obtaining a saved profile associated with a profile identifier code from the profile identifier if the profile identifier does not include the profile;

requesting the profile from the user of the mobile device if the profile identifier does not include the profile and if no saved profile is associated with the profile identifier code;

obtaining profile information from the user;

associating a profile identifier code with the obtained profile information;

saving the obtained profile information as a profile associated with the profile identifier code;

obtaining changes to the profile information from the user;

updating the profile associated with the profile identifier code;

assigning a new profile identifier code to the updated profile; and

saving the updated profile in place of the profile associated with the profile identifier code, the update profile being associated with the new profile identifier code.

22. A server system for identifying a compatible individual in a specified region, the server being located remote from the specified region, the server comprising:

a communication interface that receives a registration request at the server from a mobile device, the registration request including a profile identifier associated with a user of the mobile device and further including location information for the mobile device, the location information identifying a location in the specified region;

a database that includes a plurality of profiles, each of the profiles being associated with a profile identifier;

a check-in circuit that obtains a profile associated with the profile identifier from the database;

a search circuit that determines if a compatible individual is located within the specified region based on the profile and the location information using the database; and

wherein the communication interface is further configured to notify the user associated with the mobile device if a compatible individual is located.

23. The server system of Claim 22 wherein the mobile device is a wireless terminal configured to communicate over a wireless communication network, the wireless terminal further comprising:

a transceiver circuit that establishes a connection between the mobile device and the server over the wireless communication network;

a positioning circuit that determines a location of the wireless terminal using at least one of a global positioning system (GPS) or a land based automated positioning system configured to determine the location of the wireless terminal based on wireless

communications between the wireless terminal and the land based automated positioning system;

wherein the transceiver circuit is configured to transmit a registration request to the server over the connection, the registration request including the determined location; and

wherein the transceiver circuit is further configured to receive notification of a compatible individual in a specified region including the determined location from the server over the connection.

24. The system of Claim 23 wherein the connection is based on a protocol selected from the group consisting of Wireless Application Protocol (WAP), Cellular Digital Packet Data (CDPD), Circuit Switched Data (CSD), General Packet Radio Service (GPRS), Short Message Service (SMS) and Unstructured Supplementary Services Data (USSD).

25. The system of Claim 24 wherein the wireless communication network communicates with the server over an Internet Protocol (IP) network and wherein the connection includes IP based communications over the IP network.

26. The system of Claim 22 wherein the connection is based on a protocol selected from the group consisting of Wireless Application Protocol (WAP), Cellular Digital Packet Data (CDPD), Circuit Switched Data (CSD), General Packet Radio Service (GPRS), Short Message Service (SMS) and Unstructured Supplementary Services Data (USSD).

27. The system of Claim 26 wherein the wireless communication network communicates with the server over an Internet Protocol (IP) network and wherein the connection includes IP based communications over the IP network.

28. The system of Claim 26 wherein the communication interface is further configured to initiate contact between the user of the mobile device and the compatible individual.

29. The system of Claim 28 wherein the compatible individual is a user of a second mobile device and wherein the communication interface is further configured to establish an anonymous connection between the mobile device and the second mobile device.

30. The system of Claim 28 wherein the communication circuit is further configured to at least one of establish an instant messaging (IM) session using anonymous identities, exchange SMS messages between the mobile device and a second mobile device associated with the compatible individual with personal identification information removed or provide anonymous message posting for the user of the mobile device and the compatible individual.

31. The system of Claim 28 wherein the communication circuit is further configured to provide the user of the mobile terminal and the compatible individual contact information.

32. A mobile device for identifying a compatible individual in a specified region, the mobile device comprising:

a transceiver circuit that establishes a connection between the mobile device and a search database device over a wireless communication network;

a positioning circuit that determines a location of the wireless terminal using at least one of a global positioning system (GPS) or a land based automated positioning system configured to determine the location of the wireless terminal based on wireless communications between the wireless terminal and the land based automated positioning system;

wherein the transceiver circuit is configured to transmit a registration request to the search database over the connection, the registration request including the determined location; and

wherein the transceiver circuit is further configured to receive notification of a compatible individual in a specified region including the determined location from the search database over the connection.

33. A system for identifying a compatible individual in a specified region using a server located remote from the specified region, the system comprising:

means for receiving a registration request at the server from a mobile device, the registration request including a profile identifier associated with a user of the mobile device and further including location information for the mobile device, the location information identifying a location in the specified region;

means for obtaining a profile associated with the profile identifier;

means for determining if a compatible individual is located within the specified region based on the profile and the location information; and

means for notifying the user associated with the mobile device if a compatible individual is located.

34. The system of Claim 33 wherein the means for obtaining a profile comprises:

means for determining if the profile identifier includes the profile;

means for obtaining a saved profile associated with a profile identifier code from the profile identifier if the profile identifier does not include the profile; and

means for requesting the profile from the user of the mobile device if the profile identifier does not include the profile and if no saved profile is associated with the profile identifier code.

35. The system of Claim 34 wherein the server further comprises means for initiating contact between the user of the mobile device and the compatible individual.

36. The system of Claim 35 wherein the means for initiating contact further comprises means for scheduling a contact time for the user of the mobile device and the compatible individual based on information obtained from at least one of the profile, a profile associated with the compatible individual, schedule information received from the mobile device in the registration request or schedule information received from the mobile device responsive to the notification of a compatible individual.

37. The system of Claim 33 wherein the registration request includes search criteria and wherein the means for determining if a compatible individual is located within the specified region comprises means for searching a database

containing profiles for a plurality of candidate individuals for a match with the profile associated with the profile identifier based on the search criteria.

38. The system of Claim 37 wherein ones of the profiles for the plurality of candidate individuals include a designation of at least one of a local individual for the specified region or a roamer individual for the specified region and wherein the search criteria includes a designation of at least one of local or roamer individual and wherein the means for searching the database further comprises means for searching for profiles containing the designated at least one of local or roamer individual for the specified region.

39. The system of Claim 37 wherein the search criteria includes a designation of duration of stay, the server further comprising at least one of:

means for placing the profile associated with the profile identifier in the search database for the duration of stay; and

means for periodically searching the search database for a compatible individual for the duration of stay.

40. The system of Claim 39 wherein the search criteria further includes a designation of search timing and wherein the means for periodically searching comprises means for periodically searching the search database for a compatible individual for the duration of stay at times based on the designation of search timing.

41. The system of Claim 37 wherein the search criteria includes itinerary information, the itinerary information including at least one association of a residence time with at least one location and wherein the means for periodically searching further comprises means for periodically searching the search database for a compatible individual during respective residence times for a compatible individual located in the associated at least one location for the respective residence time.

42. A system for identifying a compatible individual in a specified region, the system comprising:

means for establishing a connection between a wireless terminal and a search database device over a wireless communication network;

means for determining a location of the wireless terminal using at least one of a global positioning system (GPS) or a land based automated positioning system configured to determine the location of the wireless terminal based on wireless communications between the wireless terminal and the land based automated positioning system;

means for transmitting a registration request to the search database over the connection, the registration request including the determined location; and

means for receiving notification of a compatible individual in a specified region including the determined location from the search database over the connection.

43. A system for identifying a compatible individual in a specified region, the system comprising:

means for receiving a registration request at a search database from a mobile device, the registration request including a profile identifier associated with a user of the mobile device and further including location information for the mobile device, the location information identifying a location in the specified region;

means for obtaining a profile associated with the profile identifier;

means for determining if a compatible individual is located within the specified region based on the profile and the location information;

means for notifying the user associated with the mobile device if a compatible individual is located;

wherein the means for obtaining a profile comprises:

means for determining if the profile identifier includes the profile;

means for obtaining a saved profile associated with a profile identifier code from the profile identifier if the profile identifier does not include the profile;

means for requesting the profile from the user of the mobile device if the profile identifier does not include the profile and if no saved profile is associated with the profile identifier code;

means for obtaining profile information from the user;

means for associating a profile identifier code with the obtained profile information;

means for saving the obtained profile information as a profile associated with the profile identifier code;

means for obtaining changes to the profile information from the user;

means for updating the profile associated with the profile identifier code;

means for assigning a new profile identifier code to the updated profile; and

means for saving the updated profile in place of the profile associated with the profile identifier code, the update profile being associated with the new profile identifier code.

44. A computer program product for identifying a compatible individual in a specified region using a server located remote from the specified region, the computer program product comprising:

a computer-readable storage medium having computer-readable program code embodied in said medium, said computer-readable program code comprising:

computer-readable program code which receives a registration request at the server from a mobile device, the registration request including a profile identifier associated with a user of the mobile device and further including location information for the mobile device, the location information identifying a location in the specified region;

computer-readable program code which obtains a profile associated with the profile identifier;

computer-readable program code which determines if a compatible individual is located within the specified region based on the profile and the location information; and

computer-readable program code which notifies the user associated with the mobile device if a compatible individual is located.

45. The computer program product of Claim 44 wherein the computer-readable program code which obtains a profile comprises:

computer-readable program code which determines if the profile identifier includes the profile;

computer-readable program code which obtains a saved profile associated with a profile identifier code from the profile identifier if the profile identifier does not include the profile; and

computer-readable program code which requests the profile from the user of the mobile device if the profile identifier does not include the profile and if no saved profile is associated with the profile identifier code.

46. The computer program product of Claim 45 wherein the server further comprises computer-readable program code which initiates contact between the user of the mobile device and the compatible individual.

47. The computer program product of Claim 46 wherein the computer-readable program code which initiates contact further comprises computer-readable program code which schedules a contact time for the user of the mobile device and the compatible individual based on information obtained from at least one of the profile, a profile associated with the compatible individual, schedule information received from the mobile device in the registration request or schedule information received from the mobile device responsive to the notification of a compatible individual.

48. The computer program product of Claim 44 wherein the registration request includes search criteria and wherein the computer-readable program code which determines if a compatible individual is located within the specified region comprises computer-readable program code which searches a database containing profiles for a plurality of candidate individuals for a match with the profile associated with the profile identifier based on the search criteria.

49. The computer program product of Claim 48 wherein ones of the profiles for the plurality of candidate individuals include a designation of at least one of a local individual for the specified region or a roamer individual for the specified region and wherein the search criteria includes a designation of at least one of local or roamer individual and wherein the computer-readable program code which searches the database further comprises computer-readable program code which searches for profiles containing the designated at least one of local or roamer individual for the specified region.

50. The computer program product of Claim 48 wherein the search criteria includes a designation of duration of stay, the server further comprising at least one of:

computer-readable program code which places the profile associated with the profile identifier in the search database for the duration of stay; and

computer-readable program code which periodically searches the search database for a compatible individual for the duration of stay.

51. The computer program product of Claim 50 wherein the search criteria further includes a designation of search timing and wherein the computer-readable program code which periodically searches comprises computer-readable program code which periodically searches the search database for a compatible individual for the duration of stay at times based on the designation of search timing.

52. The computer program product of Claim 48 wherein the search criteria includes itinerary information, the itinerary information including at least one association of a residence time with at least one location and wherein the computer-readable program code which periodically searches further comprises computer-readable program code which periodically searches the search database for a compatible individual during respective residence times for a compatible individual located in the associated at least one location for the respective residence time.

53. A computer program product for identifying a compatible individual in a specified region, the computer program product comprising:

a computer-readable storage medium having computer-readable program code embodied in said medium, said computer-readable program code comprising:

computer-readable program code which establishes a connection between a wireless terminal and a search database device over a wireless communication network;

computer-readable program code which determines a location of the wireless terminal using at least one of a global positioning system (GPS) or a land based automated positioning system configured to determine the location of the wireless terminal based on wireless communications between the wireless terminal and the land based automated positioning system;

computer-readable program code which transmits a registration request to the search database over the connection, the registration request including the determined location; and

computer-readable program code which receives notification of a compatible individual in a specified region including the determined location from the search database over the connection.

54. A computer program product for identifying a compatible individual in a specified region, the computer program product comprising:

a computer-readable storage medium having computer-readable program code embodied in said medium, said computer-readable program code comprising:

computer-readable program code which receives a registration request at a search database from a mobile device, the registration request including a profile identifier associated with a user of the mobile device and further including location information for the mobile device, the location information identifying a location in the specified region;

computer-readable program code which obtains a profile associated with the profile identifier;

computer-readable program code which determines if a compatible individual is located within the specified region based on the profile and the location information;

computer-readable program code which notifies the user associated with the mobile device if a compatible individual is located;

wherein the computer-readable program code which obtains a profile comprises:

computer-readable program code which determines if the profile identifier includes the profile;

computer-readable program code which obtains a saved profile associated with a profile identifier code from the profile identifier if the profile identifier does not include the profile;

computer-readable program code which requests the profile from the user of the mobile device if the profile identifier does not include the profile and if no saved profile is associated with the profile identifier code;

computer-readable program code which obtains profile information from the user;

computer-readable program code which associates a profile identifier code with the obtained profile information;

computer-readable program code which saves the obtained profile information as a profile associated with the profile identifier code;

computer-readable program code which obtains changes to the profile information from the user;

computer-readable program code which updates the profile associated with the profile identifier code;

computer-readable program code which assigns a new profile identifier code to the updated profile; and

computer-readable program code which saves the updated profile in place of the profile associated with the profile identifier code, the update profile being associated with the new profile identifier code.

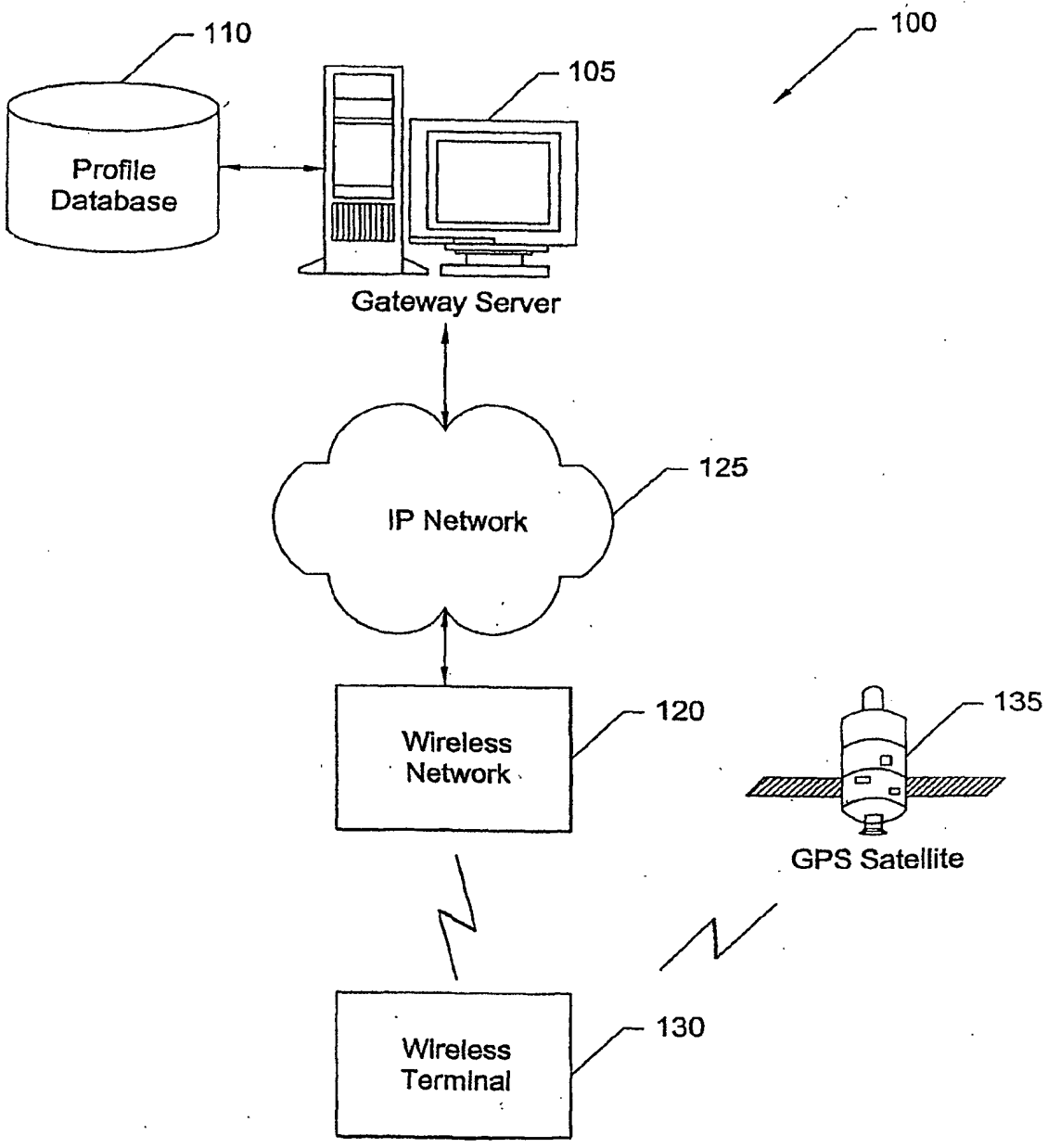
110
100
105
Profile Database
Gateway Server
IP Network
125
Wireless Network
120
135
GPS Satellite
Wireless Terminal
130

Figure 1.

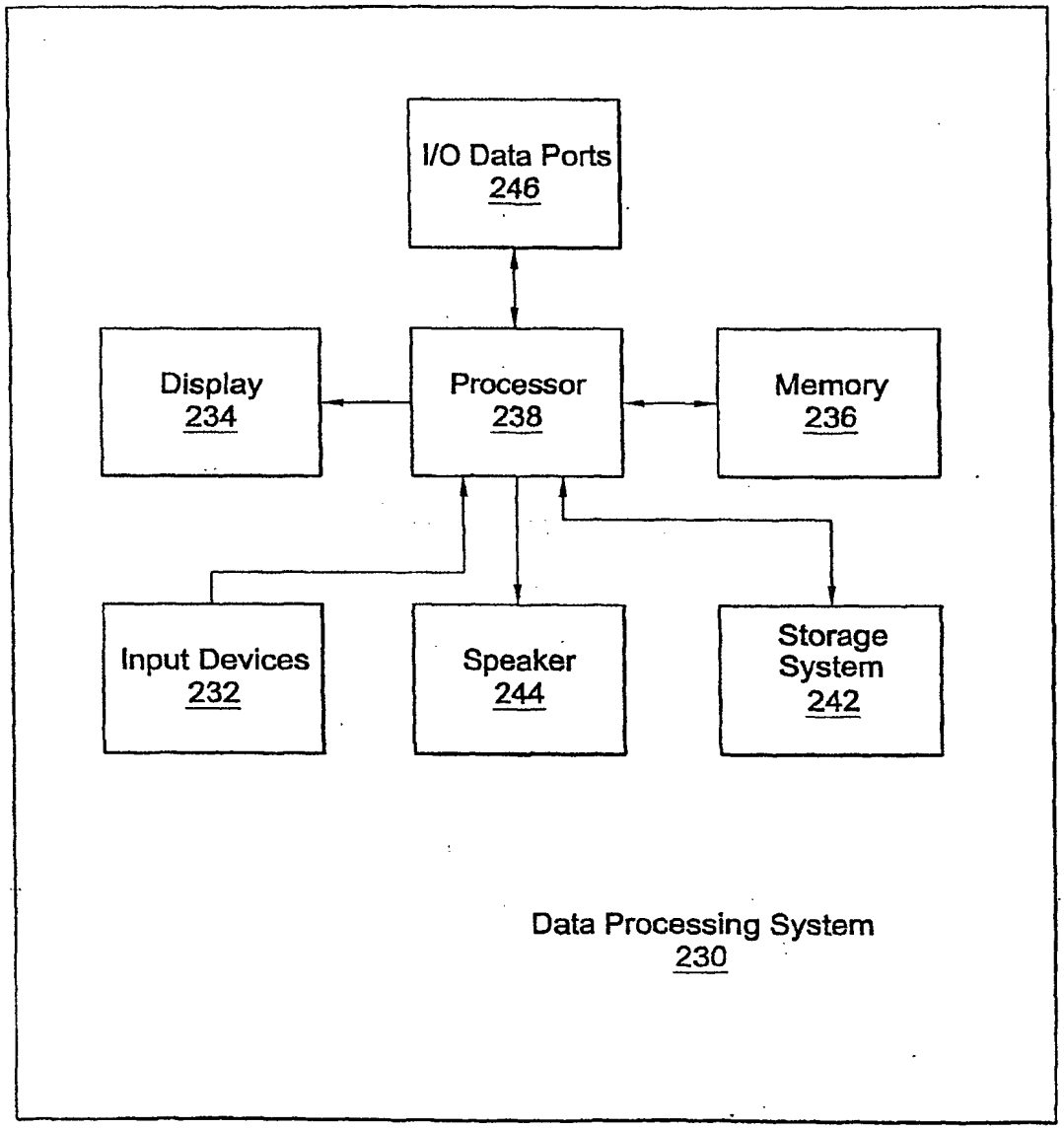
I/O Data Ports
246
Display
234
Processor
238
Memory
236
Input Devices
232
Speaker
244
Storage
System
242
Data Processing System
230

Figure 2.

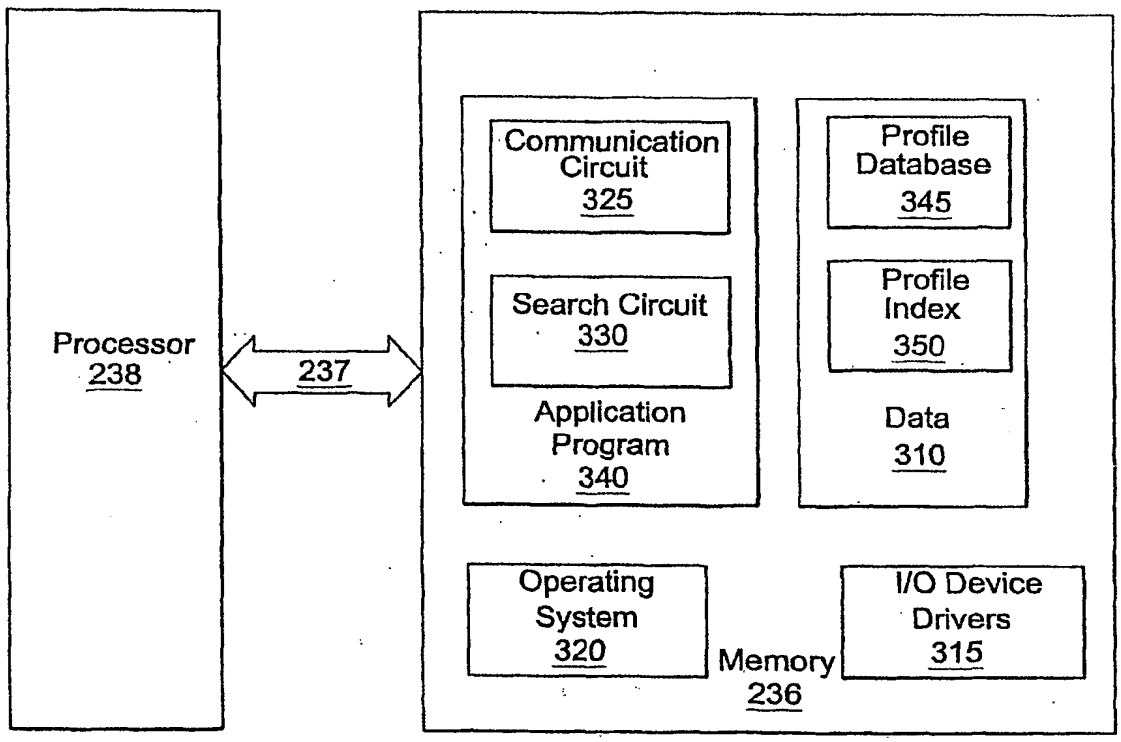
Processor
238
237
Communication Circuit
325
Search Circuit
330
Application Program
340
Profile Database
345
Profile Index
350
Data
310
Operating System
320
Memory
236
I/O Device Drivers
315

Figure 3.

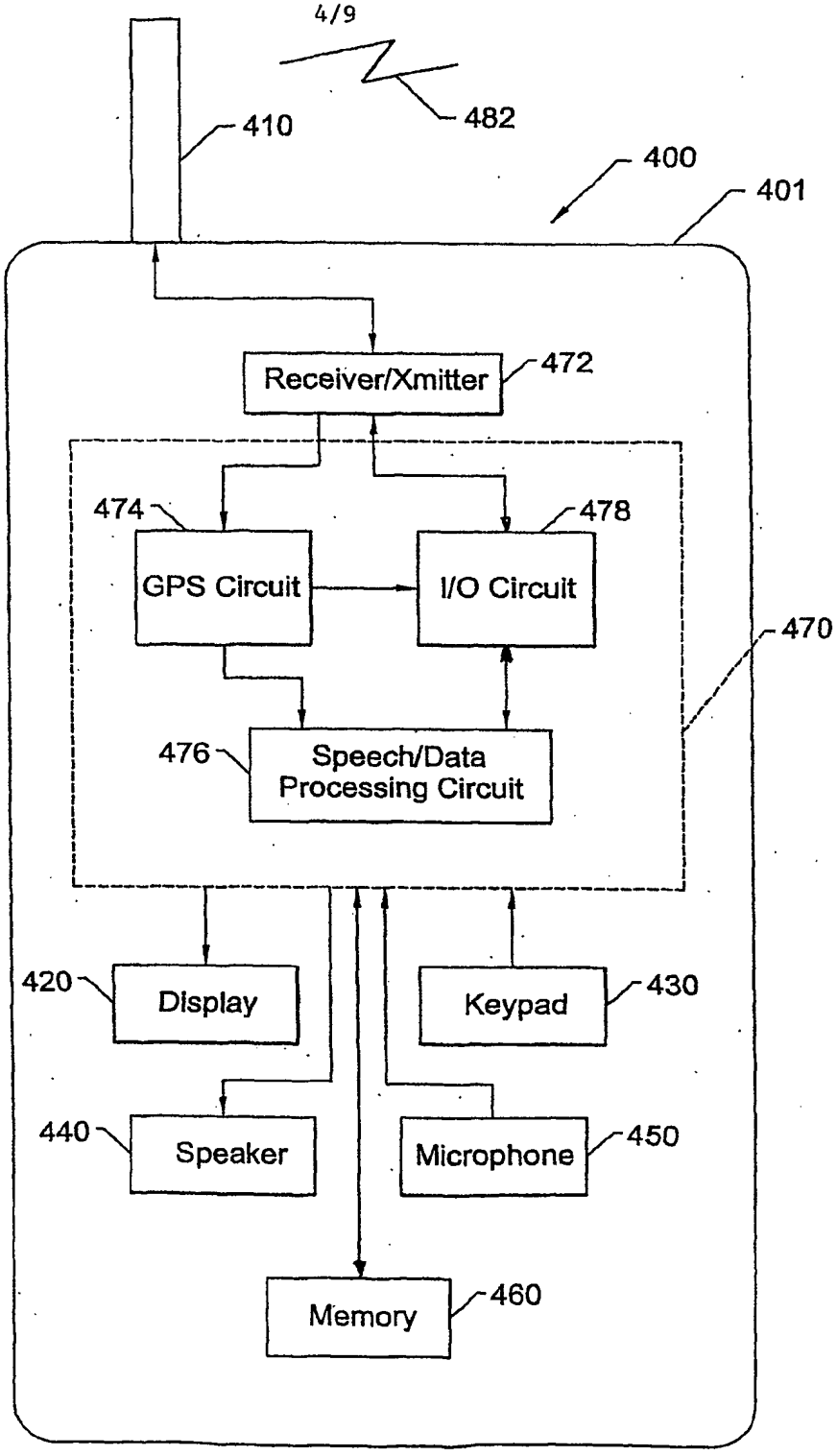
410
482
400
401
Receiver/Xmitter
472
474
478
GPS Circuit
I/O Circuit
470
476
Speech/Data
Processing Circuit
420
Display
Keypad
430
440
Speaker
Microphone
450
Memory
460

Figure 4.

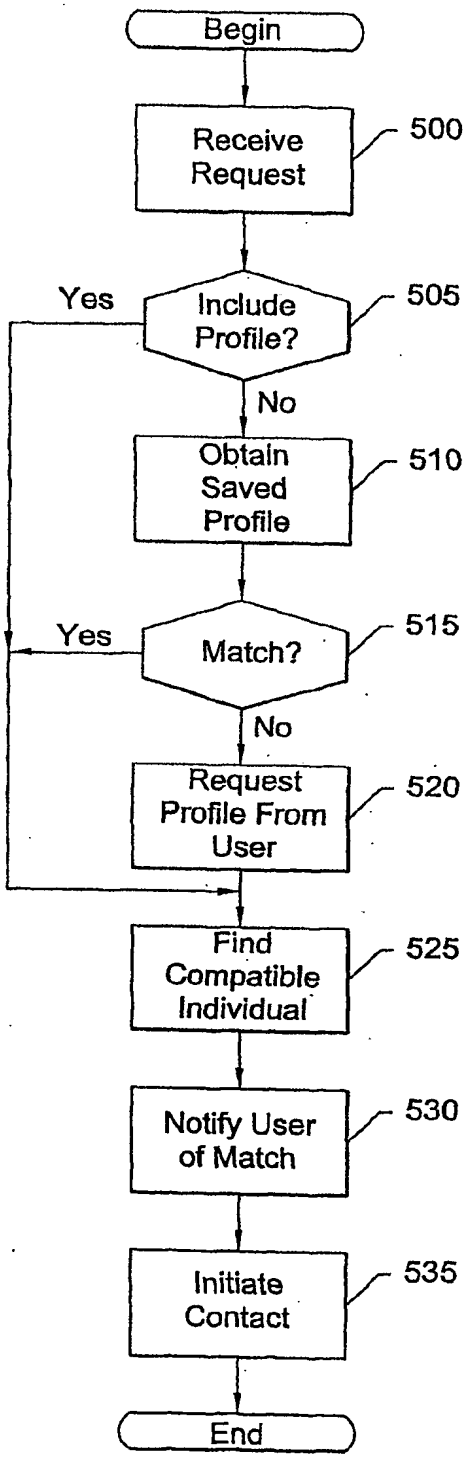
Begin
Receive Request
500
Include Profile?
505
Yes
No
Obtain Saved Profile
510
Match?
515
Yes
No
Request Profile From User
520
Find Compatible Individual
525
Notify User of Match
530
Initiate Contact
535
End

Figure 5.

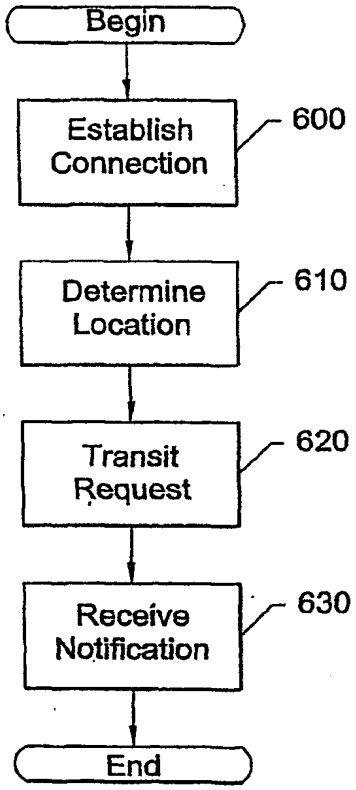
Begin
Establish Connection
600
Determine Location
610
Transit Request
620
Receive Notification
630
End

Figure 6.

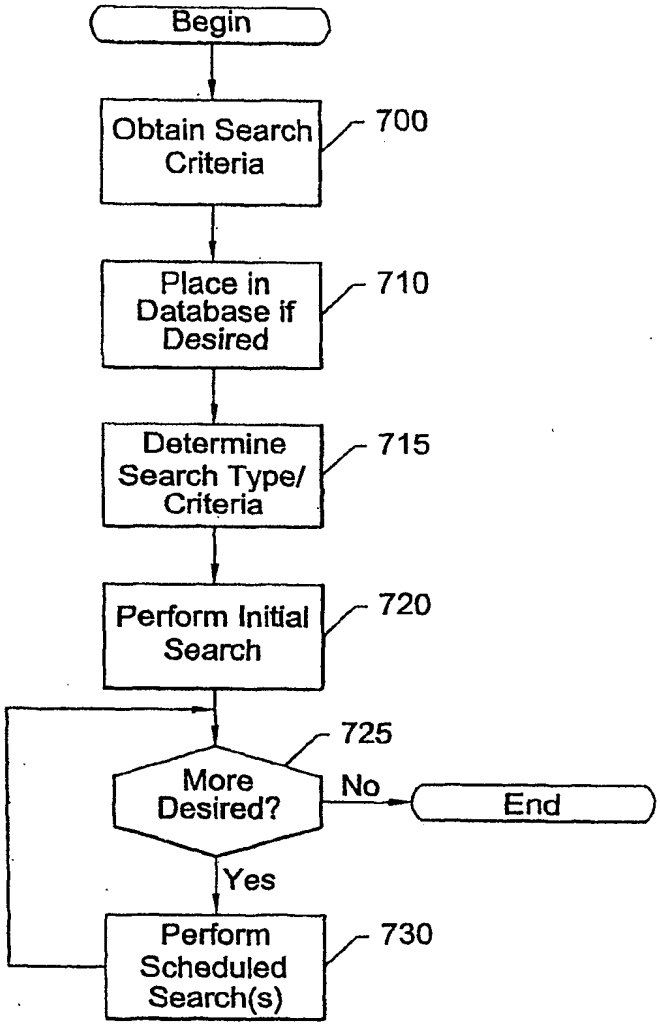
Begin
Obtain Search Criteria
700
Place in Database if Desired
710
Determine Search Type/ Criteria
715
Perform Initial Search
720
725
More Desired?
No
End
Yes
Perform Scheduled Search(s)
730

Figure 7.

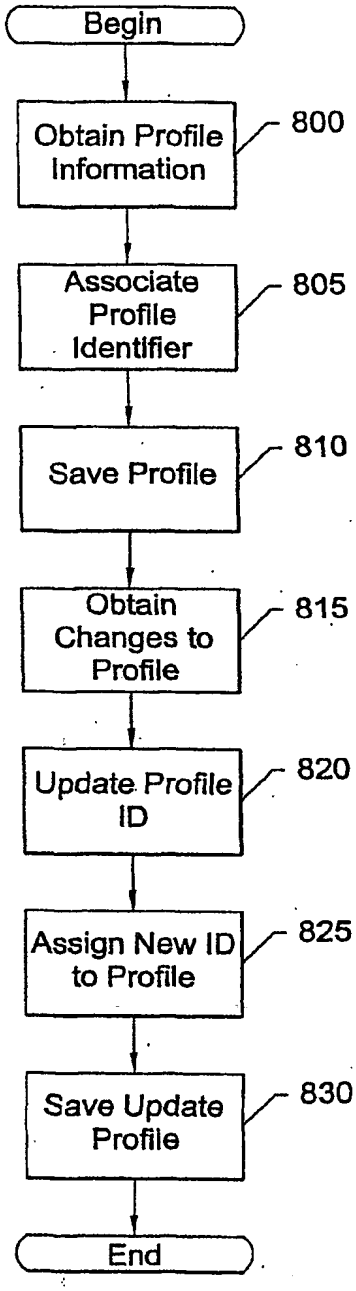
Begin
Obtain Profile Information
800
Associate Profile Identifier
805
Save Profile
810
Obtain Changes to Profile
815
Update Profile ID
820
Assign New ID to Profile
825
Save Update Profile
830
End

Figure 8.

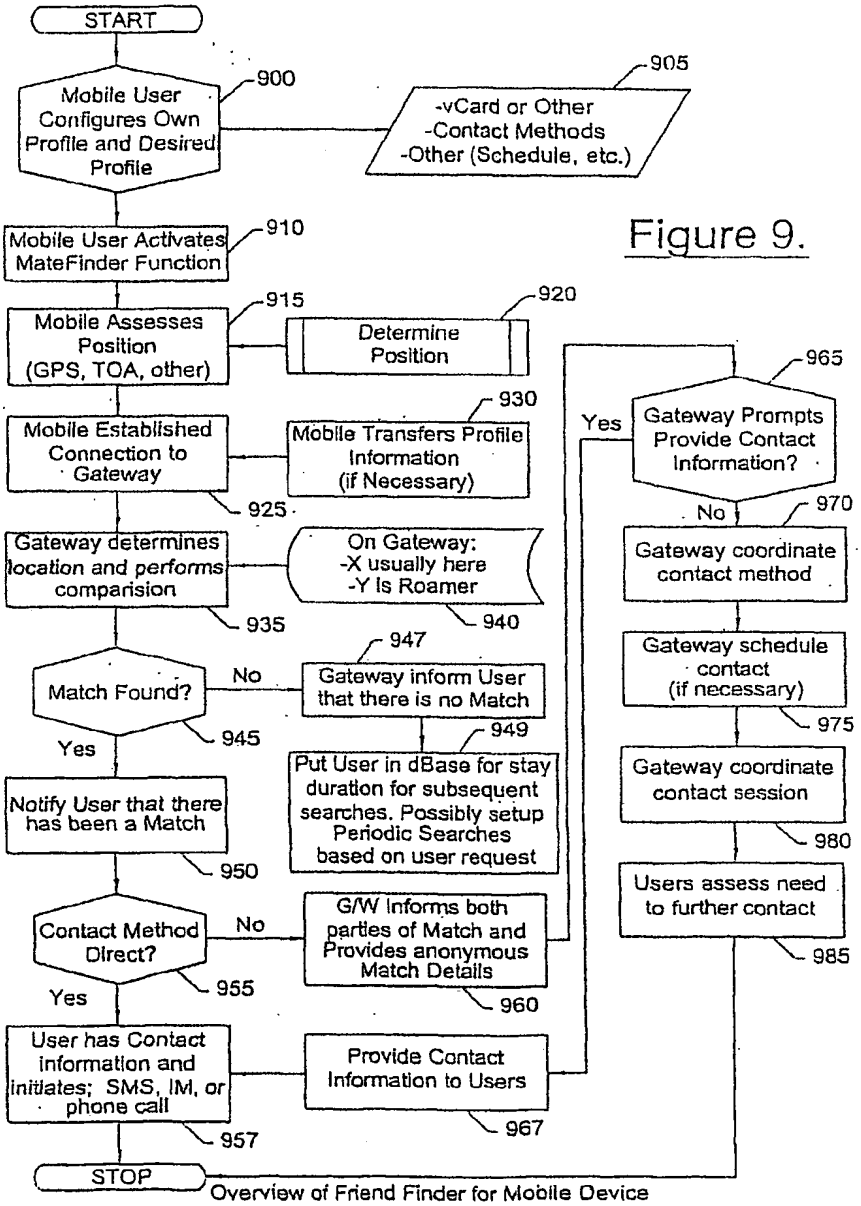

Figure 9.

Overview of Friend Finder for Mobile Device